***Competency* 2.19 Mechanical systems personnel shall demonstrate a familiarity level knowledge of the codes and standards of the American Conference of Governmental Industrial Hygienists (ACGIH).**

1. Supporting Knowledge and Skills

a. Discuss the following American Conference of Governmental Industrial Hygienists documents and their relation to the design, construction and operation of mechanical systems:
   - ACGIH, *Industrial Ventilation, A Manual of Recommended Practices* (Twenty-first Edition)
   - ACGIH, *Threshold Limit Values and Biological Exposure Indices*

b. Describe the hierarchy of the mechanical rules, codes, Orders, and standards at defense nuclear facilities and explain where American Conference of Governmental Industrial Hygienists standards fall within that hierarchy.

c. Discuss the applicability of the above American Conference of Governmental Industrial Hygienists documents to defense nuclear facilities.

2. Recommended Reading

Review

- DOE Order 440.1, *Worker Safety and Health Program.*
- ACGIH, *Industrial Ventilation: A Manual of Recommended Practices* (21st edition).
- ACGIH, *Threshold Limit Values and Biological Exposure Indices.*

3. Summary

The American Conference of Governmental Industrial Hygienists (ACGIH) recommends some of the more widely accepted industrial hygiene standards and practices.

Among the ACGIH guidance listed as mandatory in DOE is the *Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs)*. This reference generally contains a series of exposure limits to which "nearly all workers" may be regularly exposed "without adverse health effects," as well as some background information relating to those limits. This guidance is revised and updated annually.

Also among ACGIH's publications is *Industrial Ventilation, A Manual of Recommended Practice*, which is revised and updated every two to four years. It describes and contains chapters on the principles of ventilation, exhaust hoods, air cleaners, system design, and ventilation system testing. Though not listed as a mandatory DOE reference, this publication is by far the most widely quoted reference on industrial ventilation selection and design, and really constitutes the "bible" for this subject.

4. Suggested Exercises

There are currently no scenarios that support this competency.